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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/774,312

02/05/2004

Kenneth L. Levy

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DIGIMARC CORPORATION  
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EXAMINER

FUJITA, KATRINA R

ART UNIT

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/774,312	<b>Applicant(s)</b> LEVY ET AL.	
	<b>Examiner</b> KATRINA FUJITA	<b>Art Unit</b> 2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 04 November 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-6 and 8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Response to Amendment***

1. This Office Action is responsive to Applicant's remarks received on November 04, 2008. Claims 1-6 and 8 remain pending.

### ***Specification***

2. The use of the trademark Outlook™ has been noted in this application on page 10, line 7. It should be capitalized wherever it appears and be accompanied by the generic terminology.

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 5, 6, and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Hayashi et al. (US 2001/0055390).

Regarding **claims 1 and 8**, Hayashi et al. discloses a method that includes encoding one or more content objects with a steganographic digital watermark (“embedding a digital watermark in image data” at paragraph 0001, line 2) and an object produced by the process of the encoding (figure 1, numeral w1), the encoding including embedding a collection of features (“registration signal” at paragraph 0093, line 2) that can be used to facilitate computation of geometrical distortion of the object after encoding, the geometric distortion including rotation (“geometric manipulation including rotation” at paragraph 0104, line 3), an improvement including step for (embedding the registration signal, which is equivalent to applicant’s disclosed improvement step) making the collection of features resistant to attack (“providing resistance to geometric transformation” at paragraph 0005, line 2).

Regarding **claim 5**, Hayashi et al. discloses a method wherein said step includes obscuring said collection of features by designing same to become apparent only in an alternate domain (figure 4, numeral 0402).

Regarding **claim 6**, Hayashi et al. discloses a method that includes decoding a steganographic digital watermark from an encoded object (“extracting digital watermark information” at paragraph 0128, line 4), the encoding including a template signal that

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aids in determining corruption of the object, the corruption including rotation ("Attacks include scaling, rotation, printing & scanning and the like" at paragraph 0114, line 3), an improvement comprising step for (figure 2, numeral 203, which is equivalent to applicant's disclosed improvement step) detecting the template signal without log-polar remapping ("information Inf is extracted" at paragraph 0125, line 4; log-polar remapping is not performed in the extraction processes, as described in conjunction with figures 2 and 32).

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Hayashi et al. and Liao et al. (US 6,654,479).

Hayashi et al. discloses the elements of claim 1 as described in the 102 rejection above.

Hayashi et al. does not disclose adding said collection of features in some of said objects, and subtracting said collection of features from other of said objects.

Liao et al. teaches a method that includes encoding one or more content objects ("embedding information in an image" at col. 1, line 5) with a steganographic digital watermark, the encoding including embedding a collection of features that can be used to facilitate computation of geometrical distortion of the object after encoding ("watermarks are chosen such that under typical attacks, at least one of the watermarks survives and is easily detectable" at col. 3, line 34; see examples of attacks at col. 3, lines 29-33), an improvement including step for ("applies two watermarks" at col. 3, line 43, which is equivalent to applicant's disclosed improvement step) making the collection of features resistant to attack ("robust to a variety types of attacks" at col. 3, line 19), wherein said step includes adding said collection of features in some of said objects (figure 2A, numeral 214), and subtracting said collection of features from other of said objects (figure 2A, numeral 218).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to utilize the positive and negative watermarks of Liao et al. in the improvement step of Hayashi et al. such that "no matter what the attack is, at least one watermark typically survives well and can be detected" (Liao et al. at col. 1, line 33).

7. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Hayashi et al. and Cox et al. (US 5,930,369).

Hayashi et al. discloses the elements of claim 1 as described in the 102 rejection above.

Hayashi et al. does not disclose embedding said collection of features at a first scale in a first object, and embedding said collection of features at a second, different orientation in a second object.

Cox et al. discloses a method that includes encoding one or more content objects with a steganographic digital watermark ("watermarking system that embeds an unique identifier into the perceptually significant components of a decomposition of an image" at col. 5, line 47), the encoding including embedding a collection of features that can be used to facilitate computation of geometrical distortion of the object after encoding ("ensures that the watermark remains with the image even after common signal and geometric distortions" at col. 7, line 20), the geometric distortion including rotation ("Geometric distortions 18 are specific to image and video data, and include such operations as rotation, translation, scaling and cropping" at col. 8, line 35) an improvement including step for (figure 3a, numeral 42, which is equivalent to applicant's disclosed improvement step) making the collection of features resistant to attack ("ensures that the watermark remains with the image even after common signal and geometric distortions" at col. 7, line 20), wherein said step includes embedding said collection of features at a first scale (" $\alpha_i$ " at col. 10, line 20; "multiple scaling parameters  $\alpha_i... \alpha_n$  can be used with revised equations 1 to 3" at col. 10, line 20) in a first object (area corresponding to particular values of x in figure 3a, numeral D), and embedding said collection of features at a second, different scale in a second object (" $\alpha_n$ " at col. 10, line 20; "multiple scaling parameters  $\alpha_i... \alpha_n$  can be used with revised equations 1 to 3" at col. 10, line 20; different area corresponding to other values of x in which the watermark

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is embedded; subsequently, the parameters may be changed from document to document depending on the desired sensitivity, see col. 10, lines 18-42).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to utilize the scaling parameters of Cox et al. in the improvement step of Hayashi et al. to allow the watermark to be tailored to the content of the image, thereby increasing flexibility and robustness (Cox et al. at col. 10, line 18-42).

8. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Hayashi et al. and Jones et al. (US 6,792,130).

Hayashi et al. discloses the elements of claim 1 as described in the 102 rejection above.

Hayashi et al. does not disclose that said step includes embedding said collection of geometrical features at a first orientation in a first object, and embedding said collection of geometrical features at a second, different orientation in a second object.

Jones et al. discloses a method in the same field of endeavor of digital watermarking ("method for embedding watermarks in digital image sequences" at col. 1, line 9) wherein said step includes embedding said collection of features (figure 7,  $C_1(X,Y)$ ) at a first orientation ("Different carrier images are then formed by spatially transforming 56...transformations can include, but are not limited to: rotations around the carrier image center at 90° increments" at col. 7, line 37) in a first object (first frame),



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and embedding said collection of features at a second, different orientation (figure 7,  $C_2(X,Y)$ ) in a second object (second frame).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to utilize the spatial transformation of Jones et al. to embed the registration signal of Hayashi et al. to "improve performance under certain types of removal attacks and/or allows for the amplitude of the watermark to be reduced to a lower level" (Jones et al. at col. 8, line 5).

### ***Response to Arguments***

9. Applicant's arguments with respect to claims 2 and 3 have been considered but are moot in view of the new ground(s) of rejection.

Summary of Remarks (@ response page labeled 8): The Hayashi reference does not disclose "an improvement including step for making the collection of features resistant to attack".

Examiner's Response: As the Hayashi reference discloses a method of embedding a registration signal, which is a process that "provides resistance to geometric transformation", the method therefore contains a "collection of features resistant to attack" as required by the claim. Furthermore, as the Hayashi reference

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performs the function as required by the 112 6th step for limitation, it is therefore "an equivalent" of applicant's disclosed improvement step.

Summary of Remarks (@ response page labeled 9): As the Hayashi reference discloses embedding the features in the Fourier domain, the features would not be "obscured" as the "alternate domain" cannot be the Fourier domain.

Examiner's Response: In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., the alternate domain not being the Fourier domain) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

### ***Conclusion***

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to KATRINA FUJITA whose telephone number is (571)270-1574. The examiner can normally be reached on M-Th 8-5:30pm, F 8-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on (571) 272-7453. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Katrina Fujita/  
Examiner, Art Unit 2624

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